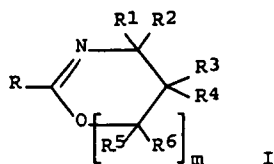


BZ

TITLE: Method for producing cyclic imide ester by  
cyclocondensation of amino alc. with nitrile  
INVENTOR(S): Kimura, Yoshio; Yasuda, Hiroshi  
PATENT ASSIGNEE(S): Showa Denko Kk, Japan  
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CODEN: JKXXAF  
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PATENT INFORMATION:

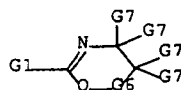
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PRIORITY APPLN. INFO.:			JP 1993-91572	19930419
OTHER SOURCE(S):			CASREACT 122:265389	

GI



AB Cyclic imide esters [I; R = C1-15 alkyl (optionally substituted by C1-5 alkyl, C1-5 alkoxy, N-alkylpyrrolyl, thienyl, furyl, Ph, or substituted Ph), C7-10 bicycloalkyl (optionally substituted by C1-5 alkyl), N-alkylpyrrolyl, thienyl, furyl, Ph (optionally substituted by halo, C1-5 alkyl, or C1-5 alkoxy), halo, C1-5 alkyl, C1-5 alkoxy; m = 0,1; R1 - R6 = H, Me, Et, Pr] are prepared by cyclocondensation of nitrile RCN (R = same as above) with amino alcs. H<sub>2</sub>NCR<sub>1</sub>R<sub>2</sub>CR<sub>3</sub>R<sub>4</sub>(CR<sub>5</sub>R<sub>6</sub>)mOH (R<sub>1</sub> - R<sub>6</sub>, m = same as above) in the presence of rhodium complex catalyst Rh[Ph<sub>2</sub>P(CH<sub>2</sub>)<sub>n</sub>PPh<sub>2</sub>]<sub>2</sub>Y (n = 3-6; X = H, halo, PF<sub>6</sub>, ClO<sub>4</sub>, BF<sub>4</sub>, CF<sub>3</sub>SO<sub>3</sub>; Y = norbornadiene, cyclooctadiene, cyclooctatriene) or a combination of PhX(PPh<sub>3</sub>)<sub>3</sub> (X = same as above) and (0.5-2)-times mol phosphine compound Ph<sub>2</sub>P(CH<sub>2</sub>)<sub>l</sub>PPh<sub>2</sub> (l = 3,4,5). This process suppresses the formation of byproducts, economically gives in high yields products I which can be readily separated, enables the recycling of the catalysts since they are stable and do not lose the activity during distillation or the catalyst recovery process, and also easily enable to recover and recycle solvents. These cyclic imide esters I are useful as polymer modifiers, materials for adhesives, or intermediates for drugs, agrochems., and dyes. Thus, propionitrile 14.32, 2-aminoethanol 5.3, and RhBF<sub>4</sub>[Ph<sub>2</sub>P(CH<sub>2</sub>)<sub>4</sub>PPh<sub>2</sub>](1,5-cyclooctadiene) 0.25 g was refluxed with stirring under Ar in a Schlenk tube for 5 h to give 92.5% 2-ethyl-2-oxazoline (b.p. 56-58°/100 mm Hg) according gas chromatog.

#### MSTR 4



G1 = alkyl <containing 1-15 C> (opt. substd. by G2)  
G2 = Ph (opt. substd. by 1 or more G4)  
G4 = halo  
G6 = bond

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